**Properties of the Visual Analogue Scale**

The VAS is presented as a 10-cm line, anchored by verbal descriptors, usually ‘no pain’ and ‘worst imaginable pain’(Fig. 1). The patient is asked to mark a 100 mm line to indicate pain intensity. The score is measured from the zero anchor to the patient’s mark. Using a millimetre scale to measure the patient’s score will provide 101 levels of pain intensity. One of the limitations of the VAS is that it must be administered on paper or electronically (Kremer et al. 1981, Dixon 1986, Jensen et al. 1986, Guyatt et al. 1987). Caution is required when photocopying the scale as this can lead to significant changes in its length (Jensen et al. 1986, Snow & Kirwan 1988).

The graphic orientation of the VAS can make a difference to the statistical distribution of the data obtained using it. Ogon et al. (1996) found that data were normally distributed when the VAS was used horizontally, but not when it was used vertically. Data obtained by horizontal and vertical VAS does correlate well (Scott & Huskisson 1979a, Hinchcliffe et al. 1985) but the level of agreement between the two is low (Dixon 1986).

In a study of Chinese patients (Aun et al. 1986) the vertical scale demonstrated less error than the horizontal scale. A similar study (Scott & Huskisson 1979b) exploring the use of the VAS by English language speakers found that there was a 7% failure rate for the VAS when it was presented vertically but less when presented horizontally. This suggests that the graphic orientation of the VAS should be decided according to the normal reading tradition of the population on which it is being used.

The VAS has ratio properties (Price et al. 1983, 1994) and is linear but not always normally distributed. The distribution of data influences the statistical test employed. Some authors advocate the use of non-parametric tests when scores obtained from VAS are not normally distributed (Ohnhaus & Adler 1975, McCormack et al. 1988, Dexter & Chestnut 1995, Ogon et al. 1996). If the distribution of data is normal the use of parametric statistical analysis, which is more powerful than non-parametric testing, is allowed.

